

**SPI-M-O**

# **Medium-Term Projections**

**23<sup>rd</sup> June 2021**

# SPI-M-O Medium-term Projections

- **These projections are not forecasts or predictions.** They represent a scenario in which the trajectory of the epidemic continues to follow the trends that were seen in the data up to 21<sup>st</sup> June and **do not include the effects of any future policy or behavioural changes.**
- The delay between infection, the need for hospital care, and death means **they cannot fully reflect the impact of policy or behavioural changes in the two to three weeks prior to 21<sup>st</sup> June.**
- Furthermore, the delay between infection, the need for hospital care and death means **the projections cannot fully reflect the recent rapid emergence and spread of the Delta variant in some regions.** Recent trends in the data are averages over populations, geographic areas and viral variants, and this needs to be considered when interpreting the projections.
- **The projections include the impact of vaccines given over the next four weeks.** This has been based on a rollout scenario provided by Cabinet Office for modelling purposes. The rollout of these doses will have limited impact over this timescale, given lags between vaccination and protection, and between infection and hospital admission.
- The projections assume vaccinations are administered according to JCVI's priority order, with uptake in the over 40s based on the number of vaccines given to date and uptake in those aged 40 and under assumed to be 80%.
- Modelling groups have used their expert judgement and evidence from [Public Health England](#), [Scottish Universities & Public Health Scotland](#), and other published efficacy studies when making assumptions about vaccine effectiveness. A table summarising these assumptions is available in the annex.
- The number of new cases, hospitalisations, and deaths have fallen to very low levels in some nations and regions. Projecting forwards is difficult when numbers fall to very low levels, therefore SPI-M-O have decided to pause producing medium-term projections in areas where this is the case. The small numbers can also introduce apparent inconsistency as regions are aggregated.
- Not all modelling groups produce projections for both hospitalisations and deaths so there will be some differences between the models included in the combined projections for each metric.

## Metrics:

- **New hospitalisations per day:** Number of individuals admitted with COVID-19 and inpatients newly diagnosed with COVID-19. Data definitions differ slightly across all four nations.
- **New deaths per day (by date of death):** The number of COVID-19 deaths within 28 days of a positive test. Data definitions differ slightly across all four nations.

# Modelled projections based on trends to 21<sup>st</sup> June 2021

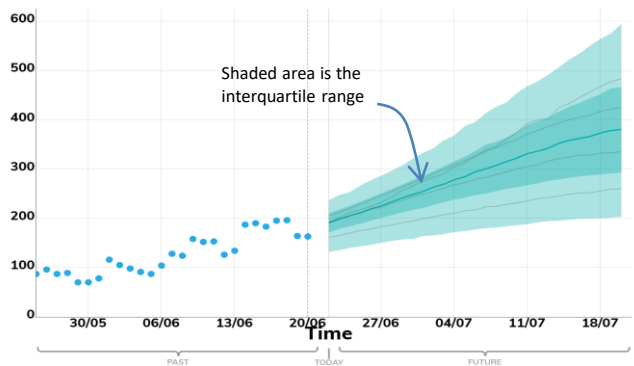
## New hospital admissions per day

These projections are based on current trends and will not fully reflect the impact of policy or behavioural changes over the past two to three weeks. They are not forecasts or predictions.

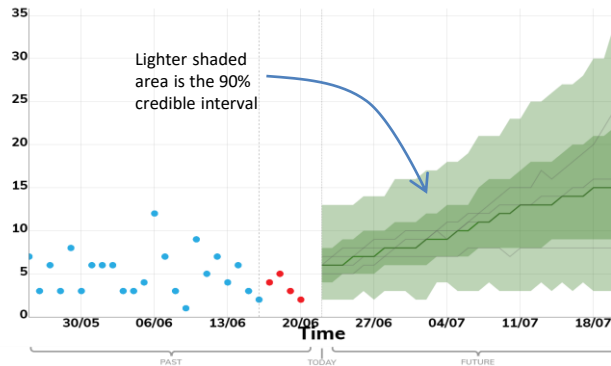
### Key

- • Real data
- • Expected to Increase
- Projection Midpoint
- High and low estimates 5<sup>th</sup> to 95<sup>th</sup> percentile
- High and low estimates 25<sup>th</sup> to 75<sup>th</sup> percentile
- Models

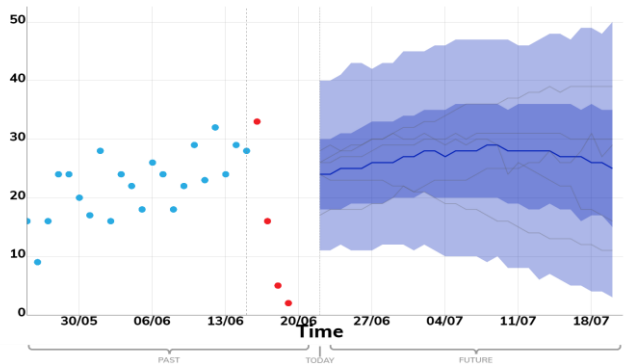
### ENGLAND



### WALES



### SCOTLAND



### NORTHERN IRELAND

SPI-M's consensus view is that the number of hospital admissions in Northern Ireland will remain low over the next four weeks.

The fan charts show the **90% credible interval and interquartile range** of the combined projections based on current trends. They cannot account for the impact of policy or behavioural changes in the two to three weeks prior to 21<sup>st</sup> June, as these will not yet have been reflected in epidemiological data.

These projections include the potential impact of vaccines to be given over the next four weeks. This has been based on a rollout scenario provided by Cabinet Office for modelling purposes; with uptake in the over 40-year olds based on the number of vaccines given to date and uptake in those aged 40 and under assumed to be 80%. These doses will have limited impact over this timescale, given lags between vaccination and protection, and between infection and hospital admission.

The projections do not include the effects of any future policy or behavioural changes.

#### Data notes:

England: Number of patients admitted with confirmed COVID-19 and the number of inpatients diagnosed with COVID-19 in the past 24 hours. Taken from NHSE COVID-19 Situation reports.

Wales: Number of patients admitted with confirmed COVID-19 and inpatients diagnosed with COVID-19. Provided by Public Health Wales.

Scotland: Number of patients who tested positive for COVID-19 in the 14 days prior to admission, on the day of admission, or during their stay in hospital. Readmissions within 14 days of a positive test are excluded. Provided by Public Health Scotland.

Northern Ireland: Number of patients admitted with confirmed COVID-19 and inpatients diagnosed with COVID-19. Provided by Health and Social Care Northern Ireland.

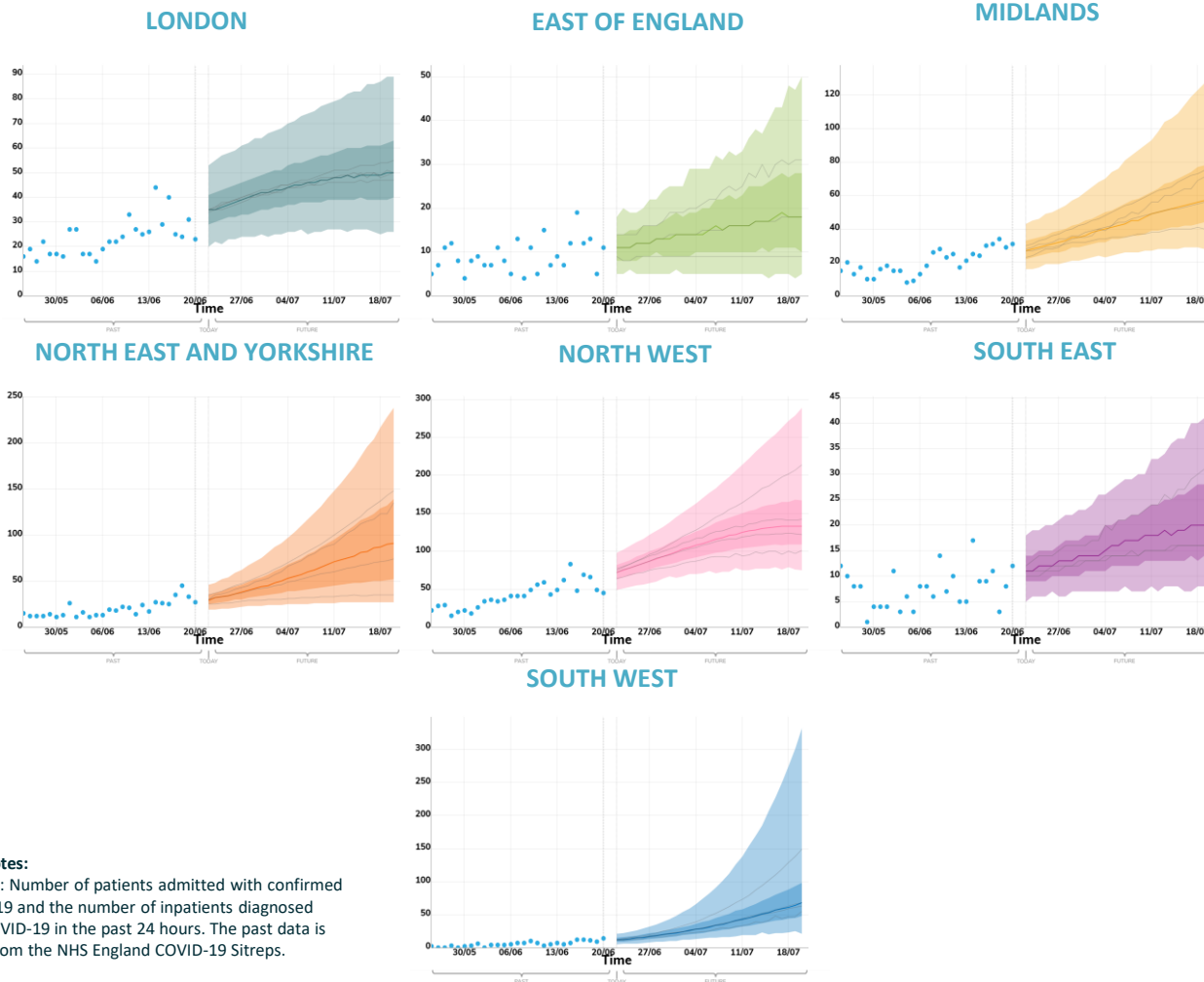
# Modelled projections based on trends to 21<sup>st</sup> June 2021

## New hospital admissions per day

These projections are based on current trends and will not fully reflect the impact of policy or behavioural changes over the past two to three weeks. They are not forecasts or predictions.

### Key

- Real data
- Expected to Increase
- Projection Midpoint
- High and low estimates 5<sup>th</sup> to 95<sup>th</sup> percentile
- High and low estimates 25<sup>th</sup> to 75<sup>th</sup> percentile
- Models



The fan charts show the **90% credible interval and interquartile range** of the combined projections based on current trends. They cannot account for the impact of policy or behavioural changes in the two to three weeks prior to 21<sup>st</sup> June, as these will not yet have been reflected in epidemiological data.

These projections include the potential impact of vaccines to be given over the next four weeks. This has been based on a rollout scenario provided by Cabinet Office for modelling purposes; with uptake in the over 40-year olds based on the number of vaccines given to date and uptake in those aged 40 and under assumed to be 80%. These doses will have limited impact over this timescale, given lags between vaccination and protection, and between infection and hospital admission.

The projections do not include the effects of any future policy or behavioural changes.

### Data notes:

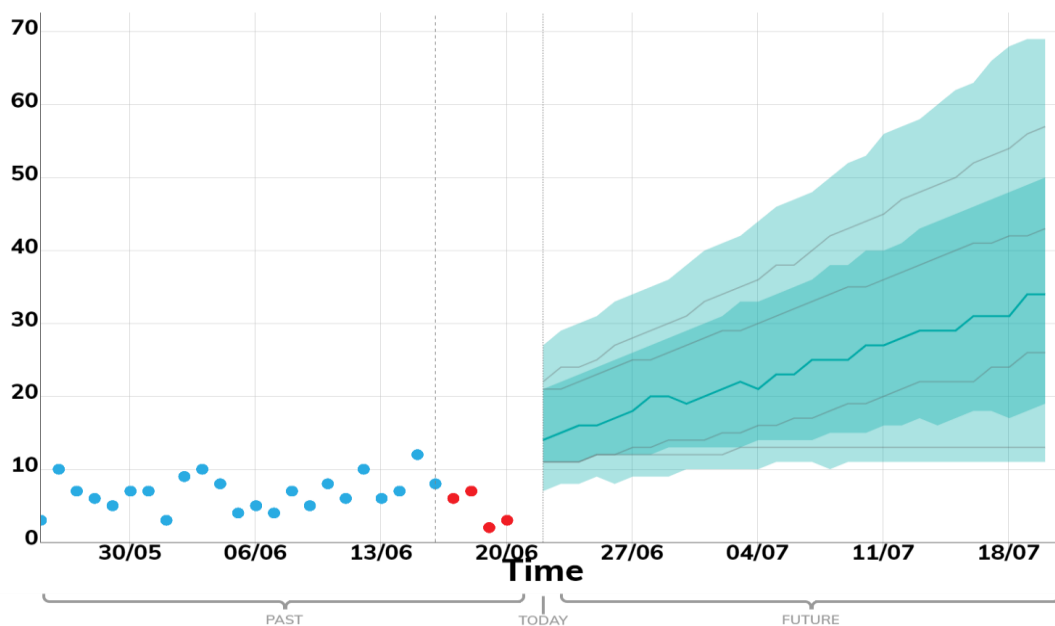
England: Number of patients admitted with confirmed COVID-19 and the number of inpatients diagnosed with COVID-19 in the past 24 hours. The past data is taken from the NHS England COVID-19 Sitreps.

# Modelled projections based on trends to 21<sup>st</sup> June 2021

## New deaths per day

These projections are based on current trends and will not fully reflect the impact of policy or behavioural changes over the past two to three weeks. They are not forecasts or predictions.

### ENGLAND



### Key

- • Real data
- • Expected to Increase
- Projection Midpoint
- High and low estimates 5<sup>th</sup> to 95<sup>th</sup> percentile
- High and low estimates 25<sup>th</sup> to 75<sup>th</sup> percentile
- Models

The fan charts show the **90% credible interval and interquartile range** of the combined projections based on current trends. They cannot account for the impact of policy or behavioural changes in the two to three weeks prior to 21<sup>st</sup> June, as these will not yet have been reflected in epidemiological data.

**These projections include the potential impact of vaccines to be given over the next four weeks.** This has been based on a rollout scenario provided by Cabinet Office for modelling purposes; with uptake in the over 40-year olds based on the number of vaccines given to date and uptake in those aged 40 and under assumed to be 80%. These doses will have limited impact over this timescale, given lags between vaccination and protection, and between infection and hospital admission.

**The projections do not include the effects of any future policy or behavioural changes.**

The number of deaths have fallen to very low levels in the Scotland, Wales, Northern Ireland and NHS regions of England. Projecting forwards is difficult when numbers fall to very low levels, therefore SPI-M-O have decided to pause producing medium-term projections where this is the case. SPI-M's consensus view is that the number of deaths in Scotland, Wales, Northern Ireland and all NHS England regions will remain low over the next four weeks.

### Data Notes:

The number of COVID-19 deaths (by date of death) within 28 days of a positive test.

The past data for England is taken from the PHE line list of deaths. The past data for Scotland, Wales, and Northern Ireland is taken from the Coronavirus (COVID-19) in the UK dashboard on Gov.uk.

# Annex: SPI-M-O Vaccine Effectiveness Assumptions

		Imperial [2]	Manchester [1]	Warwick [2] (Death)	Warwick [2] (Hospitalisation)	PHE/ Cambridge [2]	Scottish Government [2]
Pfizer-BioNTech	1 Dose	73%	75%	60%	64%	78%	91%
	2 Doses	89%	75%	96%	91%	97%	97%
Oxford- AstraZeneca	1 Dose	73%	75%	60%	64%	78%	88%
	2 Doses	85%	75%	96%	90%	97%	93%
Moderna	1 Dose	73%	75%	60%	64%	78%	90%
	2 Doses	89%	75%	96%	91%	97%	95%

		Imperial [2]	Manchester [1]	Warwick [2]	PHE/ Cambridge [2]	Scottish Government [2]
Pfizer-BioNTech	1 Dose	33%	75%	34%	31%	60%
	2 Doses	85%	75%	73%	80%	88%
Oxford- AstraZeneca	1 Dose	33%	75%	34%	31%	58%
	2 Doses	55%	75%	71%	80%	78%
Moderna	1 Dose	33%	75%	34%	31%	60%
	2 Doses	85%	75%	73%	80%	88%

		Imperial [2]	Manchester [4]	Warwick [2]	PHE/ Cambridge [2,4]	Scottish Government [2,4]
Pfizer-BioNTech	1 Dose	33%	-	45%	-	-
	2 Doses	33%	-	45%	-	-
Oxford- AstraZeneca	1 Dose	33%	-	45%	-	-
	2 Doses	33%	-	45%	-	-
Moderna	1 Dose	33%	-	45%	-	-
	2 Doses	33%	-	45%	-	-

[1] Manchester's model does not split vaccine effectiveness by vaccine type or different doses.

[2] Imperial, Warwick, PHE/Cambridge & Scottish Government's vaccine effectiveness assumptions are for the B.1.617.2 (delta) variant.

[3] The assumed delay between vaccination and protection varies between 10 and 21 days for dose 1 and between 7 and 21 days for dose 2 across the modelling groups.

[4] The Manchester, PHE/ Cambridge and Scottish Government models do not include a reduction in the risk of onwards transmission after receiving either vaccine.